

What is claimed is:

1. A friction assembly for a brake comprising:

a brake pad having

5 a friction material for producing friction when the brake is in use; and
a backing plate having a friction supporting surface for supporting the
friction material and a back surface opposite to the friction supporting surface, the
back surface having a first coupler member; and

10 a noise damping shim having a first surface for engaging with the back surface
of the backing plate, and a second surface for receiving a compression force when
the brake is in use, the first surface having a second coupler member for engaging
with the first coupler member provided on the back surface of the backing plate so as
to couple the noise damping shim with the backing plate.

15 2. The friction assembly as claimed in claim 1 wherein

the first coupler member has a stem; and

the second coupler member has a rim defining a hole for accepting the stem of
the first coupler member.

20 3. The friction assembly as claimed in claim 2 wherein

the first coupler member further has a recess surrounding the stem; and

the rim of the second coupler member protrudes from the first surface of the
noise damping shim towards the backing plate such that the rim of the second
coupler member is accepted by the recess of the first coupler member while the hole
25 of the second coupler member accepts the stem of the first coupler member.

4. The friction system as claimed in claim 3 wherein

the rim of the second coupler member defines the hole having a larger section
and a smaller section, the smaller section is defined closer to the backing plate than
30 the larger section; and

the stem of the first coupler member has an enlarged section having a larger cross section adjacent to the distal end such that the enlarged section of the stem of the first coupling member mates with the larger section of the hole of the second coupler member to prevent disengagement of the shim from the backing plate.

5

5. The friction system as claimed in claim 4 wherein the stem of the first coupler member is deformed to have the enlarged section.

10

6. The friction system as claimed in claim 4 wherein the enlarged section of the stem of the first coupler member is pre-formed on the stem.

15

7. The friction system as claimed in claim 2 wherein the height of the stem of the first coupler member is about 0.07 to 0.09 inches (about 2.24 to 3.98 mm), and the height of the rim of the second coupler member is about 0.04 to 0.07 inches (about 1.02 to 1.78 mm).

20

8. The friction system as claimed in claim 2 wherein the diameter of the stem of the first coupler member is about 0.095 to 0.105 inches (about 2.41 to 2.67 mm), and the diameter of the rim of the second coupler member is about 0.107 to 0.112 inches (about 2.72 to 2.84 mm).

25

9. The friction system as claimed in claim 6 wherein the height of the stem of the first coupler member is about 0.07 to 0.09 inches (about 2.24 to 3.98 mm), the distance between the enlarged section and a free end of the stem is about 0.02 to 0.03 inches (about 0.51 to 0.76 mm), and the height of the rim of the second coupler member is about 0.04 to 0.07 inches (about 1.02 to 1.78 mm).

30

10. The friction system as claimed in claim 9 wherein the diameter of the stem of the first coupler member is about 0.095 to 0.105 inches (about 2.41 to 2.67 mm), the diameter of the enlarged section is about 0.12 to 0.13 inches (about 3.05 to 3.30

mm), and the diameter of the tubular section of the rim of the second coupler member is about 0.107 to 0.112 inches (about 2.72 to 2.84 mm).

11. A backing plate for a friction assembly for a brake, the friction assembly having a
5 brake pad including the backing plate and a friction material, the backing plate comprising:

a friction supporting surface for supporting a friction material for producing friction when the brake is in use;

10 a back surface opposite to the friction supporting surface, the back surface being adapted to receive a noise damping shim; and

a first coupler member formed on the back surface for engaging with a second coupler member formed on the noise damping shim to couple the noise damping shim with the backing plate.

15 12. The backing plate as claimed in claim 11 wherein

the first coupler member has a stem that is received in a hole defined by the second coupler member.

13. The backing plate as claimed in claim 12 wherein

20 the first coupler member further has a recess surrounding the stem to accept a rim defining the hole of the second coupler member.

14. The backing plate as claimed in claim 13 wherein

25 the stem of the first coupler member has an enlarged section having a larger cross section adjacent to the distal end such that the enlarged section of the stem of the first coupling member mates with a larger section of the hole of the second coupler member to prevent disengagement of the shim from the backing plate.

15. The backing plate as claimed in claim 14 wherein

30 the stem of the first coupler member is deformed to have the enlarged section.

16. The backing plate as claimed in claim 14 wherein

the enlarged section of the stem of the first coupler member is pre-formed on the stem.

5

17. A method of assembling a friction system for a brake, the friction system including a backing the method comprising the steps of:

providing a first coupler member on a back surface a friction assembly having a friction pad for producing friction when the brake is in use; and

10

a backing plate having a friction supporting surface for supporting the friction pad and a back surface opposite to the friction supporting surface;

providing a second coupler member on a noise damping shim having a first surface adapted for engagement with the back surface of the backing plate, and a second surface adapted for receiving a compression force when the brake is in use;

15

coupling the second coupler member provided on the noise damping shim with the first coupler member provided on the back surface of the backing plate so as to couple the shim with the backing plate.

18. The method as claimed in claim 17 wherein

20

the coupling step couples the first coupler member and the second coupler member by as a rivet.

19. The method as claimed in claim 18 wherein

25

the step for providing the first coupler member provides a stem on the back surface of the backing plate; and

the step for providing the second coupler member provides a rim defining a hole for accepting the stem of the first coupler member; and

the coupling step comprises steps of:

mating the first coupler member with the second coupler member so as to the stem of the first coupler member is accepted in the hole of the second coupler member;

 deforming the stem to secure the first coupler member with the second
5 coupler member.

20. The method as claimed in claim 17 wherein

 the coupling step couples the first coupler member and the second coupler member by a snapping-in action.

10

21. The method as claimed in claim 20 wherein

 the step for providing the first coupler member provides a stem on the back surface of the backing plate, the stem having an enlarged section adjacent to a free end of the stem; and

15 the step for providing the second coupler member provides a rim defining a hole for accepting the stem of the first coupler member; and

 the coupling step snaps the stem of the first coupler member into the hole of the second coupler member so that the enlarged section of the stem of the first coupler member secures the coupling between the first coupler member and the
20 second coupler member.